	Application No.	Applicant(s)
	09/990,572	MOSELHI ET AL.
Notice of Allowability	Examiner	Art Unit	
	Sheela C. Chawan	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *June 12, 2006*.

2. ☒ The allowed claim(s) is/are *4-26,28-39, Renumbered as 1-35*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892) 2/27/05, 8/1/05

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date *11/26/03*

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *6/12/06* .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

Examiner's Amendment

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with Mrs. Alexandra Daoud (Reg # 55,992), on 6/12/06.

IN THE CLAIMS:

See the attached Amendment sheet page number 002- 007.

DETAILED ACTION

Response to Amendment

2.   Applicant's amendment filed on June 12, 2006 has been entered.

In response to applicant's amendment all the prior art rejection has been

withdrawn.

Claims 1, 2, 3 and 27 are cancelled.

Claims 4-26 and 28-39 are pending in the application.

Response to Arguments

3.   Applicant's arguments filed on June 12, 2006 have been fully considered and are

persuasive. As pointed out by the applicant in the remark, see page 2, filed June 12,

2006 with respect to claims 4-26 and 28-39 have been fully considered and as a result

amended claim 4 and 23 is now indicated allowable, as they include allowable subject

matter of the objected claims 9-13,19-22, 27-31, 36-39 (as pointed out in the last office

action mailed 3/14/06). Claims 4-26 and 28-39 have been withdrawn from the rejection

and are allowed.

Drawings

4.   The Examiner has approved drawings filed on 10/9/03.

Information Disclosure Statement

5.   The information disclosure statement (IDS) submitted on 11/26/03 the examiner

has considered.

Reasons For Allowance

6.   The following is an examiner's statement of reasons for allowance:

Claims 4-26 and 28-39 are allowed (Renumbered as 1-35).

As pointed out by the applicant in the remark, see page 2, filed June 12, 2006 with respect to claims 4-26 and 28-39 have been fully considered and as a result amended claim 4 and 23 is now indicated allowable, as they include allowable subject matter of the objected claims 9-13,19-22, 27-31, 36-39 (as pointed out in the last office action mailed 3/14/06). Claims 4-26 and 28-39 have been withdrawn from the rejection and are allowed.

7.   Any comments considered necessary by applicant must be submitted on later than the payment of the issue fee and to avoid processing delays should preferably accompany the issue fee. Such submissions should be clearly labeled, comments on statement of reasons for allowance.

Contact Information

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheela Chawan
Patent Examiner
Group Art Unit 2624
July 5, 2006

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (canceled)

2. (canceled)

3. (canceled)

4. (currently amended) A method for detecting a plurality of defects in an item under inspection comprising:

acquiring at least one image of said item;

providing a plurality of neural networks, at least one of said plurality of neural networks corresponding to each one of said plurality of defects to be detected, wherein each one of said plurality of defects is selected from a group comprising depositsat least one of, cross-sectional reductions, misalignments, infiltration, and cracks;

processing said at least one image to produce a processed image having objects isolated from an image background of said image; and

inputting said processed image into said plurality of neural networks to obtain information concerning corresponding defects.

5. (previously presented)   A method as claimed in claim 4, further comprising issuing a report using said information concerning said defects.

6. (previously presented)   A method as claimed in claim 4, wherein said plurality of neural networks further comprises sets of neural networks used for counter-checking results, each one of said sets of similar neural networks corresponding to each one of said plurality of defects to be detected.

7. (previously presented)   A method as claimed in claim 4, wherein processing said at least one image further comprises processing said at least one image according to a selected set of image analysis techniques, said set of image analysis techniques selected as a function of said defects to be detected.

8. (previously presented)   A method as claimed in claim 7, wherein n sets of neural networks are used to detect n types of defects.

9. (previously presented)   A method as claimed in claim 8, wherein:

   said item under inspection is a sewer pipe;

   n corresponds to 5; and

   said plurality of defects are deposits, cross-sectional reductions, misalignments, infiltration, and cracks.

10. (previously presented)   A method as claimed in claim 9, wherein deposits, cross-sectional reductions, and misalignments correspond to a first set of image analysis techniques, infiltration corresponds to a second set of image analysis techniques, and cracks correspond to a third set of image analysis techniques.

11. (previously presented)   A method as claimed in claim 10, wherein said first set of image analysis techniques comprises the operations of inversion, dilation, background subtraction, thresholding, segmentation, and analysis.

12. (previously presented)   A method as claimed in claim 10, wherein said second set of image analysis techniques comprises the operations of dilation, background subtraction, thresholding, segmentation, and analysis.

13. (previously presented)   A method as claimed in claim 10, wherein said third set of image analysis techniques comprises the operations of background subtraction, edge detection, dilation, thresholding , and analysis.

14. (previously presented)   A method as claimed in claim 4, wherein said neural networks are back-propagation neural networks.

15. (previously presented)   A method as claimed in claim 4, wherein said acquiring an image comprises using a closed circuit television camera and a videotape.

16. (previously presented)   A method as claimed in claim 13, wherein said videotape is digitized.

17. (previously presented)   A method as claimed in claim 6, wherein each set of neural networks comprises at least three neural networks used for counter-checking results.

18. (previously presented)   A method as claimed in claim 4, further comprising determining a position of said objects in said item under inspection.

19. (previously presented)   A method as claimed in claim 5, further comprising recommending a rehabilitation technique based on said report and a set of attributes of said item under inspection.

20. (previously presented)   A method as claimed in claim 19, wherein said attributes are part of a group comprising technical requirements, contractual requirements, and cost effectiveness.

21. (previously presented)   A method as claimed in claim 19, wherein a plurality of rehabilitation techniques are recommended.

22. (previously presented)   A method as claimed in claim 21, further comprising ranking said plurality of recommended rehabilitation techniques.

23. (currently amended)   A method for detecting a selected defect in an item under inspection comprising:

acquiring an image of said item;

providing a neural network for detecting said selected defect, wherein said selected defect is selected from ~~a group comprising~~at least one of deposits, cross-sectional reductions, misalignments, infiltration, and cracks;

selecting a set of image analysis techniques as a function of said selected defect;

processing said image according to said selected set of image analysis techniques for said selected defect to produce a processed image having objects isolated from an image background of said image;

inputting said processed image to said neural network to obtain information corresponding to said selected defect.

24. (previously presented)   A method as claimed in claim 23, further comprising issuing a report based on outputs produced by said neural network.

25. (previously presented)   A method as claimed in claim 23, wherein said providing a neural network further comprises providing a set of neural networks, said set of neural networks being used for counter-checking results.

26. (previously presented)   A method as claimed in claim 25, wherein said set of neural networks comprises three neural networks.

27. (canceled)

28. (previously presented)   A method as claimed in claim 23, wherein deposits, cross-sectional reductions, and misalignments correspond to a first set of image analysis techniques, infiltration corresponds to a second set of image analysis techniques, and cracks correspond to a third set of image analysis techniques.

29. (previously presented)   A method as claimed in claim 28, wherein said first set of image analysis techniques comprises the operations of inversion, dilation, background subtraction, thresholding, segmentation, and analysis.

30. (previously presented)   A method as claimed in claim 28, wherein said second set of image analysis techniques comprises the operations of dilation, background subtraction, thresholding, segmentation, and analysis.

31. (previously presented)   A method as claimed in claim 28, wherein said third set of image analysis techniques comprises the operations of background subtraction, edge detection, dilation, thresholding, and analysis.

32. (previously presented)   A method as claimed in claim 23, wherein said neural network is a back-propagation neural network.

33. (previously presented)   A method as claimed in claim 23, wherein said acquiring an image comprises using a closed circuit television camera and a videotape.

34. (previously presented)   A method as claimed in claim 33, wherein said videotape is digitized.

35. (previously presented)   A method as claimed in claim 23, further comprising determining a position of said objects in said item under inspection.

36. (previously presented)   A method as claimed in claim 24, further comprising recommending a rehabilitation technique based on said report and a set of attributes of said item under inspection.

37. (previously presented)   A method as claimed in claim 36, wherein said attributes are part of a group comprising technical requirements, contractual requirements, and cost effectiveness.

38. (previously presented)   A method as claimed in claim 36, wherein a plurality of rehabilitation techniques are recommended.

39. (previously presented)   A method as claimed in claim 38, further comprising ranking said plurality of recommended rehabilitation techniques.